

## 2021 ACF Regionals

Packet N by Northwestern A, NYU A, McGill A, Rutgers A, VCU A, Cambridge B

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### Tossups

1. Three copies of this functional group form a rotaxane found in the platelet-derived growth factor family. In bacteria, this functional group is formed by the enzyme DsbA, which, like its eukaryotic counterpart, contains an active-site CXXC motif. This functional group's three internal dihedral angles are usually all roughly 90 degrees. A selenium-based enzyme reduces peroxides by oxidizing glutathione (“gloot-uh-THIGH-own”) to form this functional group. The enzyme PDI (“P-D-I”) forms this group by catalyzing oxidative folding.

Beta-mercaptoethanol (“beta-mercapto-ethanol”) prepares proteins for sequencing by reductively cleaving these groups. Under oxidizing conditions, thiols dimerize to form these groups, which are abundant in the keratin of curly hair. For 10 points, name this type of bond formed in proteins by pairs of linked cysteine (“sis-teen”) residues.

ANSWER: **disulfide** bonds [or **disulfide** bridges; prompt on cysteine (“sis-teen”) or cystine (“sis-tyne”) until read]  
<Chemistry>

2. When a man in this novel describes a sketch he made depicting a woman as a kite, another man awkwardly reveals his engagement to her by claiming to have cut its string. In a scene in this novel, three men take turns swimming in a shallow pool of water before breaking into a spontaneous splash fight. A man in this novel disrupts a tennis match by reading aloud from a romance novel whose contents are taken from one of this novel's earlier scenes. This novel's protagonist has some photographs bloodied during a knifing, which she sees when she gets separated from Miss Lavish without her Baedeker guide. After calling off her engagement to the snobbish Cecil Vyse, this novel's protagonist elopes with George Emerson. For 10 points, name this novel about Lucy Honeychurch by E. M. Forster.

ANSWER: *A **Room with a View***

<British Literature>

3. In this opera's aria “Il vecchiotto cerca moglie” (“eel vek-YO-toh CHAIR-ka MOLE-yeh”), a servant laments that she is too old to find love. An oboe solo in the middle of this opera's overture contains the notes “long G, A, B, long B, down to D.” A character in this opera tries to break up a wedding, but is calmed down when he is offered the dowry. A character in this opera sings “Contro un cor” during a music lesson with Don Alonso, which is later interrupted by the title character. A character in this opera sings of her love for the fake student Lindoro in the aria “Una voce poco fa.” The title character of this opera repeatedly shouts his own name in the aria “Largo al factotum.” For 10 points, Count Almaviva attempts to court Rosina with the help of Figaro in what *opera buffa* by Gioachino Rossini?

ANSWER: *The **Barber of Seville*** [or *The **Barber of Seville**, or The Useless Precaution; or Il **barbiere di Siviglia, ossia L'inutile precauzione***]

<Other Arts (Auditory)>

4. The conservative writer Richard Weaver lamented this philosopher's role in changing “man's conception of reality” in the book *Ideas Have Consequences*. David Chalmers's only paper on the history of philosophy addresses the issues of “simple connotative terms” and “synonymy” in this much-earlier thinker's theory that thought operates via “natural signs” analogous to spoken language. This philosopher held that certain concepts are merely the act of “intellection” itself after abandoning his earlier *factum*-theory of those entities. This thinker argued for nominalism about universals in *Summa Logicae*. “Entities are not to be multiplied without necessity” is a common rendering of, for 10 points, what medieval philosopher's namesake “razor”?

ANSWER: William of **Ockham** [or William of **Occam**; accept **Occam**'s razor; prompt on **William**]  
<Philosophy>

5. Roger Frey, aide to this country's president, organized a unit known as "the bearded ones" to suppress insurgent activities. This country's Morin ("more-in") Law provides compensation to victims of radiation poisoning, exemplified by the nine soldiers poisoned in the Beryl Incident. A president of this country was offered diamonds by Jean-Bedel Bokassa, but would later support his overthrow in Operation Barracuda. This country bungled a humanitarian response to the Rwandan Genocide in Operation Turquoise. Félix Houphouët-Boigny ("oo-FWAY bwan-YEE"), who served in this country's parliament, supported relations with this country, unlike Guinea's Sékou Touré. For 10 points, what European country has been criticized for its interventionist policies in its former African colonies, such as the Ivory Coast?

ANSWER: **France** [accept French **Fifth Republic**]  
<World History>

6. This adjective and either "longitudinal" or "transverse" describe the two excitations whose energies appear in the Lyddane–Sachs–Teller relation. The binding energy of excitons reduces a material's band gap to a smaller band gap known by this adjective, which also describes a material's frequency-dependent conductivity. A lattice basis with at least two atoms supports excitations described by this word that have nonzero energy at " $k$  equals 0." A crystal has " $3N$  minus 3" phonons described by this word alongside three acoustic phonons. A high-tech material described by this word uses a "graded" or "step" profile to separate a high-index core from its low-index cladding, ensuring total internal reflection. For 10 points, what adjective describes glass fibers that transmit data in the form of light?

ANSWER: **optical** [or word forms like **optics**; accept **optical** phonons or **optical** band gap or **optical** conductivity or **optical** fibers; accept fiber **optics**; prompt on **fiber** by asking "what other word is used in the name of those objects?"]  
<Physics>

7. Milvus grabs the entrails of a creature that was half-snake and half this animal before Briareus can burn them in the *Fasti*. In one scene, this animal is shown with a tail of wheat as the Sun and Moon look on from the corners, while Cautes ("COW-teez") and Cautopates ("COW-toh-PA-teez") bear torches. Book XX of the *Iliad* claims that the sacrifice of these creatures, though they are not horses, delights the Earth-Shaker. A figure in a Phrygian cap slays one of these animals in a central scene of one Roman mystery religion. Zeus abducts the mother of Sarpedon and Rhadamanthys in the form of a white one of these animals. Arthur Evans discovered images of people leaping over this animal at Knossos. Poseidon sent one of these animals to Pasiphaë's ("puh-SIFF-uh-ee's") husband. For 10 points, the Minotaur had the head of what animal?

ANSWER: **bull** [prompt on **cattle** or **cow**; prompt on **Minotaur** until read by asking "what animal's head does it have?"] (Arthur Evans argued that the roars of bulls resembled tremors of the earth and referenced lines from Book XX of the *Iliad*.)  
<Mythology>

8. In an adaptation of this play, a woman becomes a bronze caster and attempts to marry the white man Allan. While acting in this play, a character exclaims "Time waits no longer. I go now to my living death" after ripping off his wig. Femi Osofisan wrote "An African" version of this play, which is reimagined among British Muslims in Kamila Shamsie's novel *Home Fire*. Two characters who often shovel sand onto one another's feet perform this play while in prison in *The Island* by John Kani, Winston Ntshona ("un-CHO-nah"), and Athol Fugard. Jean Anouilh ("zhawn ah-NOO-ee") adapted this play to Vichy ("VEE-shee") France. Ismene ("is-MEE-nee") falsely confesses to a crime in this play, whose title character is walled up in a cave for disobeying Creon and burying her brother Polynices. For 10 points, name this Sophocles play, the last in the Oedipus trilogy.

ANSWER: **Antigone** [accept **Tegonni**, *An African Antigone*; prompt on *The Island* by asking “what play are they performing?”]

<World/Other Literature>

9. This man controversially ran an article by Ernst von Salomon in his magazine *Confluence*. Kidnapping this man was among the charges brought against Philip Berrigan and some nuns, a group known as the Harrisburg Seven. This man’s worldview is analyzed in Berry Gewen’s *The Inevitability of Tragedy*, and Christopher Hitchens wrote a book about his *Trial*. George H. W. Bush and this author of *The Necessity for Choice* feuded over a potential policy of “two Chinas.” Multiple committee members resigned after Lê Đức Thọ (“lay duck tau”) and this man were awarded the 1973 Nobel Peace Prize for negotiating an end to the Vietnam War. For 10 points, name this espouser of *realpolitik* who achieved *détente* (“day-TONT”) with the Soviets, a National Security Advisor under Richard Nixon.

ANSWER: Henry **Kissinger** [accept *The Trial of Henry Kissinger*]

<American History>

10. In 2019, researchers discovered wax cones that appear in paintings from this modern-day country. The Pitt-Rivers knife handle from this country features rows of animals marching in different registers. The realistic portrayal of a ruler of this country slumped in a throne earned Edmonia Lewis critical scorn. A portrait of a queen of this country with a crown of two feathers later had blue faience (“fye-ONSE”) beads added. The cover of Camille Paglia’s *Sexual Personae* juxtaposes the sculpture of a ruler of this country with an image of Emily Dickinson. That sculpture from this country has a single quartz pupil and accentuates its subject’s long neck. Another ruler of this country built colossal statues at Abu Simbel. For 10 points, the bust of Nefertiti was created in what country?

ANSWER: **Egypt** (The Edmonia Lewis sculpture is *The Death of Cleopatra*; the faience beads were added to the *Portrait of Queen Tiye*.)

<Painting/Sculpture>

11. The shift in these quantities due to a perturbation is bounded above by a condition number times the norm of the perturbation, by the Bauer–Fike theorem. One of these quantities is the maximum output of a ratio of inner products called the Rayleigh quotient, by the Courant minimax principle. Power iteration yields a sequence that converges to the largest of these quantities. Besides ones and zeroes, these are the only entries in a Jordan block. These quantities are all real for a Hermitian map by the spectral theorem. The Cayley–Hamilton theorem implies that any root of the minimal polynomial is one of these values, since these are the roots of the characteristic polynomial. For 10 points, name these values denoted lambda, such that the equation “ $Ax$  equals lambda  $x$ ” holds for a matrix  $A$  and a vector  $x$ .

ANSWER: **eigenvalues** [accept specific answers such as dominant **eigenvalues** or largest **eigenvalues**; accept **characteristic value** until “characteristic” is read; accept **spectrum** until “spectral” is read; prompt on **lambda**]

<Other Science (Math)>

12. In this collection, a man feels like he is pregnant with a young woman in a suit of armor. A man in this collection kicks out a woman who is “too big for the room,” but finds that he has driven all his imaginary people away with her. The mustache of a “ludicrous” carpenter bobs up and down as he cries over his dead brother, so that a bed is never raised, in this work’s introduction, which repeats “they were all beautiful” when describing “the truths.” A doctor scribbles thoughts onto scraps of paper and rolls them into balls in his pockets in this work. This collection, which includes “Loneliness” and “Paper Pills,” begins with the prologue “The Book of the Grotesque.” For 10 points, name this story collection about Kate Swift, George Willard, and other inhabitants of a Midwest town, by Sherwood Anderson.

ANSWER: **Winesburg, Ohio** [or **Winesburg, Ohio: A Group of Tales of Ohio Small-Town Life**; prompt on “Loneliness,” “Paper Pills,” or “The Book of the Grotesque” by asking “what collection are those stories part of?”]

<American Literature>

13. *Description acceptable.* The violence legitimized by homonationalism in service of this goal is critiqued in a Jasbir Puar book alleging that its “discourses” are “gendered, raced, and sexualized.” Common tactics in service of this goal fail because they rely on the fallacious “strategic model,” according to Max Abrahms. *Doe v. Holder* struck down a provision of an act with this goal that allowed the FBI to issue unopposable NSLs. *Hamdan v. Rumsfeld* held that military commissions that were set up to try people who were detained as part of this goal were unlawful and that those detainees were protected under the Geneva Convention. John Yoo authored memos justifying “enhanced interrogation” in service of this goal. For 10 points, name this goal of the USA PATRIOT Act and invasion of Afghanistan.

ANSWER: **counter-terrorism** [accept **fighting terrorism** or **anti-terrorism** or the **War on Terror**; or equivalents; accept specific answers like **fighting al-Qaeda** or **fighting the Taliban**; prompt on USA **PATRIOT Act** until read by asking “What was its major goal?”; prompt on **torture**, **enhanced interrogation** (until read), **spying**, **surveillance**, or equivalents by asking “to gather intelligence for what goal?”; do not accept or prompt on “terrorism”]  
<Social Science>

14. This place is termed “boundless” in an essay collection co-written by Peregrine Horden and Nicholas Purcell, who described its “corrupting” effect in an earlier history. A history titled for this place that rejects “evenemential history” opens with the section “The Role of the Environment.” That work titled for this place describes “the almost imperceptible movement of history,” drawing on the ideas of Lucien Febvre. A *longue durée* history titled for “[this place] and [this place’s] World in the Age of Philip II” was written by Ferdinand Braudel. Roman historiographers called this place both “Mare Internum” and “Mare Nostrum.” For 10 points, historians of ancient Egypt theorized an invasion of the New Kingdom by “peoples” from what body of water, which divides Europe and Africa?

ANSWER: **Mediterranean** Sea [accept La **Méditerranée**; accept *The Mediterranean and the **Mediterranean World** in the Age of Philip II*; accept *La Méditerranée et le **monde méditerranéen** à l’époque de Philippe II*; prompt on **sea** or **Sea Peoples**]  
<Other History>

15. In 2019, these animals were used to test B cell response to a potential HIV vaccine by Wyatt et al. Injecting the blood of rhesus monkeys into these animals led to the discovery of the Rh factor. Eye irritation caused by cosmetics can be measured with a Draize test using dogs or albino variants of these animals. Urine was injected into these animals’ ovaries in an obsolete test, resulting in the euphemism “[this animal] died” for a positive pregnancy test. Long-term potentiation was discovered in these animals’ hippocampi, and these animals are the most common mammalian source of [emphasize] *polyclonal* antibodies. Australia released myxoma virus in 1950 to control a feral, invasive population of these animals. For 10 points, name this quickly-reproducing mammal that can come in a cottontail variety.

ANSWER: **rabbits** [or **bunny**; or **bunnies**; accept **lagomorphs**]  
<Biology>

16. John Corigliano’s concerto for this instrument includes an elegy for his father and an “Antiphonal Toccata.” In *Appalachian Spring*, this instrument enters in bar 2 with a motif of rising thirds, and later, it is the first to play the “Simple Gifts” theme. This instrument plays a cadenza within a “Verbunkos” (“VAIR-boon-kohsh”) that begins a three-movement work for violin, piano, and this instrument by Béla Bartók titled *Contrasts*. A trill on F played by this instrument precedes a 17-tuplet ascending scale at the beginning of a piece orchestrated by Ferde Grofé (“FER-dee gro-FAY”). Aaron Copland wrote a concerto for a player of this instrument, who made a noted recording of Stravinsky’s *Ebony Concerto*. For 10 points, name this instrument whose *glissando* opens Gershwin’s *Rhapsody in Blue* and was played by Benny Goodman.

ANSWER: **clarinet** [accept **clarinet** in B-flat or B-flat **clarinet**; accept **clarinet** in A or A **clarinet**]  
<Classical Music>

17. Following an event in this city, a 60-question survey known as the “Parochial Memories” was sent out to every parish. In this city, timber-and-masonry structures known as *gaiola* were first introduced to reinforce buildings. To avoid Jean-Andoche Junot’s (“zhoo-NO’s”) invading army, this city’s royal family fled the Palace of Queluz (“keh-LOOSH”). During that conflict, the Duke of Wellington constructed the Lines of Torres Vedras to defend this city. An assassination attempt against Joseph I in this city sparked the Tavora Affair. This city was reconstructed in the Pombaline style after an event that occurred on All Saints’ Day and caused the flooding of the Tagus River. For 10 points, what capital city, the seat of the Braganza dynasty, was levelled by a deadly 1755 earthquake?

ANSWER: **Lisbon** [or **Lisboa**]

<European History>

18. This poet lamented “the veil so governs me that to my death, and by heat and cold, the sweet light of your lovely eyes is shadowed.” To begin a collection, this poet wrote that he has “become an old tale” such that “shame is the fruit of [his] vanities.” This poet lyrically prostrates himself before a figure who is “filled with every grace” and “clothed in glory, crowned with stars” before asking her to send him to her son, Jesus Christ. This poet describes how love found him “all weaponless” upon being spellbound by “lovely eyes” “on that day when the sun’s ray / was darkened.” This author opens one collection by calling to “you who hear the sound, in scattered rhymes.” For 10 points, name this admirer of Laura, the Italian poet of *Il Canzoniere* and namesake of a sonnet style.

ANSWER: **Petrarch** [or Francesco **Petrarca**; accept **Petrarchan** sonnet] (All the clues are from *Il Canzoniere*.)

<European Literature>

19. A class of marginalized spirits named for this figure includes the enchantress Pomba Gira. This figure is frequently depicted with a phallic knife or parrot feather adorning his head. This friend of Orunmila often appears carved on trays used for Ifá divination. Worshippers sing for this figure to “open the gate for me.” In one story, this figure provokes neighboring friends into a heated argument by wearing a cap colored either red or white on one side and black on the other. This spirit must be invoked first in rituals because he relays messages between humans and the other orisha (“or-EE-sha”) or loa (“lwah”). For 10 points, name this divinity of the crossroads worshipped across the Afro-Atlantic diaspora, depicted in Haitian Vodou as an old man with a cane.

ANSWER: Papa **Legba** [or **Eshu** or **Exu** or **Èsù**; accept **Eshu-Eleggua** or **Èsù-Elegbara**] (The “ouvrier barriere por moi” invocation to Papa Legba is mentioned in various studies of Vodou, including Alfred Métraux’s “Voodoo in Haiti” and Zora Neale Hurston’s *Tell My Horse*.)

<Religion>

20. A forty-acre “desert” in this state resulted from overgrazing on the Tuttle family farm. A philanthropist’s insistence on rustic designs led the roads of a national park in this state to be lined with stones known as “Rockefeller’s Teeth.” A “World Traveler Signpost” lists the distance to several towns in this state named after countries. This state’s town of Kennebunkport hosts the summer home of the Bush family, while FDR often vacationed on Campobello Island east of this state in the Bay of Fundy. Frederic Church and Marsden Hartley painted this state’s highest peak at Mount Katahdin (“kuh-TAH-din”). For 10 points, name this state home to Acadia National Park, as well as the northern terminus of the Appalachian Trail.

ANSWER: **Maine**

<CE/Geo/Other/Pop Culture>

## Bonuses

1. In a lecture about this author, Bergotte's desire to see "View of Delft" before he dies is linked with the present danger facing the speaker. For 10 points each:

[10m] Name this author, the subject of a lecture series given by the artist Joseph Czapski ("CHAP-ski") in a Soviet prison camp. His most famous work, translated by C. K. Scott Moncrieff, may feature a gender-swapped version of his secretary.

ANSWER: Marcel **Proust** [or Valentin Louis Georges Eugène Marcel **Proust**] (Proust's secretary, Albert Nahmias, was possibly the inspiration for Albertine.)

[10e] In *Survival in Auschwitz*, Primo Levi recites part of this work to a fellow prisoner. A reference to this first section of the *Divine Comedy* names a Solzhenitsyn novel about gulag technicians, *The First Circle*.

ANSWER: **Inferno** [prompt on *The Divine Comedy* until read]

[10h] Eugenia Ginzburg wrote about reciting this author's poetry in the gulags. The line "Black night, white snow" opens "The Twelve," a poem by this author that describes Jesus leading Bolshevik guards in a massacre.

ANSWER: Alexander **Blok** [or Alexander Alexandrovich **Blok**]

<European Literature>

2. This company was accidentally sabotaged by "Joybubbles," a 7-year-old with perfect pitch; that feat was replicated by John Draper using Captain Crunch pirate whistles. For 10 points each:

[10m] Name this company that signed the Kingsbury Commitment to avoid one antitrust suit, but faced another in 1982. This company was purchased by its former subsidiary SBC in 2005.

ANSWER: **AT&T** [or **American Telephone and Telegraph** Company]

[10e] After that antitrust suit, AT&T was forced to break up this "Ma" system into seven regional "Baby" systems. This system was named for AT&T's founder, the inventor of the telephone.

ANSWER: **Bell** [accept **Bell** System; accept Ma **Bell** or Baby **Bells**; accept Alexander Graham **Bell**]

[10h] In the Kingsbury Commitment, AT&T sold its shares in this company founded by Ezra Cornell, which created the first stock ticker. This rival of AT&T pivoted away from telephones after Elisha Gray lost a patent suit to Bell.

ANSWER: **Western Union**

<American History>

3. Observations of ravens hiding food from potential thieves suggest that they possess this ability. For 10 points each:

[10m] Name this ability that is often measured using false-belief tasks or the Sally–Anne test. Those tests display this ability, which allows people to distinguish between their own thoughts and knowledge and those of others.

ANSWER: **theory of mind** [or **mentalizing**; prompt on mind-reading; do not accept or prompt on "philosophy of mind" or "concept of mind"]

[10e] Understanding false-belief tasks requires that children overcome their egocentrism through social interaction, as described by this theorist. This man divided development into stages like sensorimotor and preoperational.

ANSWER: Jean **Piaget**

[10h] Senghas and Pyer's work on this spontaneously developed language shows that success in false-belief tasks depends on language maturity, not just socialization. Senghas studied this language's Extensive Contact Period.

ANSWER: **Nicaraguan Sign Language** [or **NSL**]

<Social Science>

4. Weber and Rinne name a test of this sort that uses a tuning fork vibrating at 512 hertz. For 10 points each:

[10e] Name these tests. In the most common version of these tests, tones are played at different frequencies via headphones to determine the minimum threshold for a parameter measured in decibels.

ANSWER: **hearing** tests [accept **audiometry** or pure tone **audiometry**]

[10m] Audiograms from hearing tests can distinguish between sensorineural hearing loss and hearing loss caused by defects in this process. In this process, vibrations in air are transmitted through middle ear bones to the inner ear.

ANSWER: **conduction** [accept air **conduction** or bone **conduction**; accept **conductive** hearing loss]

[10h] Hearing loss can change the primary auditory cortex's organization, which is normally described by this term. The varying stiffness of the basilar membrane spatially separates frequencies, resulting in this organization as well.

ANSWER: **tonotopic** organization [or **tonotopy**; or **cochleotopy**; accept **tonotopic map**]

<Biology>

5. *Description acceptable.* Paul Beatty won the first competition for these works hosted by a “Nuyorican” organization. For 10 points each:

[10m] Name this type of work that includes the “dub” style of Linton Kwesi Johnson. One work in this format describes an event that “will not go better with Coke” and “will not fight germs that may cause bad breath.”

ANSWER: **spoken word** poetry [or **slam** poetry] [prompt on **poems** or **poetry** or **dub** poetry until read; accept **poetry** performed **out loud** or equivalents;

[10e] A spoken word poem by Gil Scott-Heron claims that “you will not be able to plug in, turn on, and cop out” because this event “will not be televised.”

ANSWER: the **revolution** [accept “The **Revolution** Will Not Be Televised”]

[10h] This poet performed spoken word with the band Poetic Justice in “Letter from the End of the Twentieth Century.” In a list-formatted poem, this author described animals who “laughed too much” and “licked razor blades.”

ANSWER: Joy **Harjo** (The poem is “She Had Some Horses.”)

<American Literature>

6. Many composers were musically inspired by the story of Joan of Arc. For 10 points each:

[10e] *Giovanna d'Arco* is an opera by this composer, who also wrote *Rigoletto* and *La Traviata*.

ANSWER: Giuseppe **Verdi**

[10m] The oratorio *Jean d'Arc au bûcher*, featuring a prominent part for ondes Martenot (“OND mart-NO”), is by this Swiss member of Les Six (“lay seese”) and composer of *Pacific 231*.

ANSWER: Arthur **Honegger** (“ar-TOOR oh-neh-GAIR”)

[10h] *The Holy Presence of Joan d'Arc* is a work for cello ensemble by this African-American minimalist composer, who used indeterminate notation and gave several works provocative titles like *Gay Guerrilla*.

ANSWER: Julius **Eastman**

<Classical Music>

7. A party of this type nicknamed the “White Whale” governed in coalitions for 48 years before disbanding during the *mani pulite* investigations. For 10 points each:

[10m] Name this religion-infused political ideology. A party of this type manufactured an “economic miracle” in the 1940s and 1950s when it cut inflation and rapidly rebuilt after World War II.

ANSWER: **Christian democracy** [accept **Christian Democratic** Union of Germany; accept **Christlich Demokratische Union Deutschlands**; accept **Democrazia Cristiana**]

[10e] Patricio Aylwin and Eduardo Frei Ruiz-Tagle, two leaders from this country's Christian Democratic Party, served successively as president after the military rule of Augusto Pinochet.

ANSWER: **Chile** [or Republic of **Chile**]

[10h] Oswaldo Payá, a dissident in this country, founded a Christian democratic party called the Christian Liberation Movement, as well as the Varela Project. This country suffered an economic depression called the “Special Period.”

ANSWER: **Cuba** [or Republic of **Cuba**]

<Other History>

8. Luke 9:27, which states “truly I tell you, some who are standing here will not taste death before they see the kingdom of God,” is interpreted by this school to refer to the destruction of the Second Temple. For 10 points each:  
[10h] Name this school of thought that interprets some or all prophecies in the Bible as having already been fulfilled.

ANSWER: **preterism** [accept full **preterism**; accept partial **preterism**]

[10m] Other preterists interpret that the “kingdom of God” in Luke 9:27 refers to this event, where a radiant Jesus meets with Elijah and Moses on Mount Tabor.

ANSWER: the **Transfiguration** of Christ

[10e] According to many non-preterists, the phrase “some who are standing here” refers to people born during the reestablishment of this nation, and who are expected to rebuild the Third Temple in this nation’s disputed capital.

ANSWER: **Israel** [or State of **Israel**; or Medinat **Yisrael**]

<Religion>

9. Drake’s song “Nice for What” extensively samples this artist’s song “Ex-Factor.” For 10 points each:

[10m] Name this artist who, with Wyclef Jean (“WHY-clef zhon”) and Pras Michel, formed the hip-hop group The Fugees. Her only solo album is titled for her “Miseducation.”

ANSWER: Lauryn **Hill** [or Lauryn Noelle **Hill**; accept *The Miseducation of Lauryn Hill*]

[10e] This other musician interpolated lyrics from “Ex-Factor” on her song “Be Careful.” Both that song and her hit single “Bodak Yellow” appear on her 2018 album *Invasion of Privacy*.

ANSWER: **Cardi B** [or Belcalis Marlenis **Almánzar**; prompt on **Cardi**]

[10h] This rapper sampled “Ex-Factor” throughout “My Song,” which opens “I ain’t the next Ms. Hill.” This artist behind the 2019 album *Eve* has a guest verse on “Complexion” from Kendrick Lamar’s album *To Pimp a Butterfly*.

ANSWER: **Rapsody** [or Marianna **Evans**]

<CE/Geo/Other/Pop Culture>

10. The Kolmogorov–Smirnov test statistic equals the supremum of the distance between one of these functions and an empirical version defined from the data. For 10 points each:

[10m] Name this type of function, usually written capital *F*. One of these functions evaluated at a point *x* gives the probability that a random variable is less than or equal to *x*.

ANSWER: cumulative **distribution** function [or **CDF**; do not accept or prompt on “probability density function” or “PDF”]

[10h] The Kolmogorov–Smirnov test is commonly used in this branch of statistics, whose techniques include kernel density estimation. This branch of statistics does not assume that the data come from a specific family of distributions.

ANSWER: **nonparametric** statistics

[10e] A common assumption in parametric statistics is that error terms follow this distribution, whose density is shaped like a bell curve.

ANSWER: **normal** distribution [or **Gaussian** distribution; or Laplace–**Gauss** distribution]

<Other Science (Math)>

11. Giuliani Pisani proposed that the depiction of a one-horned, snake-vomiting Envy should be paired with Charity in his analysis of fourteen grisaille (“griz-EYE”) figures found in this building. For 10 points each:

[10m] Name this building whose vices and virtues are thought to omit avarice, potentially because of a patron’s reputation for usury. This chapel’s blue ceiling depicts stars and four prophets around the Madonna and Child.

ANSWER: **Scrovegni** (“scro-VAIN-ye”) Chapel [or Cappella degli **Scrovegni**; or **Arena** Chapel] (Pisani wrote *I volti segreti di Giotto*, in which he argued that each vice should be paired with its opposite virtue, rather than going straight through each set.)

[10e] Minerva expels the Vices from one of these places in a *Triumph of the Virtues* by Mantegna. An angel drives Adam and Eve from one of these places in a Massacio fresco.



ANSWER: **gardens** [accept *Minerva Expelling the Vices from the Garden of Virtues* or *The Expulsion from the Garden of Eden*]

[10h] Vice hides a dagger and sphinx behind her skirt and struggles with Virtue over this figure in a Paolo Veronese painting. Annibale Carracci (“ah-NEE-ba-lay ka-RAH-chee”) also depicted this figure’s choice between allegorical female figures of Vice and Virtue.

ANSWER: **Hercules** [or **Heracles**; accept *The Choice of Hercules* or the judgment of **Hercules** or **Hercules** at the crossroads]

<Painting/Sculpture>

12. Clenora Hudson-Weems used this adjective to name her alternative to Alice Walker’s womanism. For 10 points each:

[10h] Give this specific adjective. Lewis Gordon wrote an introduction to the branch of philosophy of this name, which retroactively includes the work of thinkers like Anténor Firmin, Anna Julia Cooper, and Frantz Fanon (“fah-NAWN”).

ANSWER: **Africana** [accept *An Introduction to Africana Philosophy*]

[10e] Lewis Gordon’s *Existential Africana* discusses many examples of Black existentialist thought, such as Cornel West’s concept of “keeping faith” as an antidote to this position. Generally, this position holds that nothing matters.

ANSWER: **nihilism** [or word forms; accept “**Nihilism** in Black America”]

[10m] Kwame Appiah (“APP-ee-ah”) and Henry Louis Gates completed *Africana*, one of these works envisioned by W. E. B. DuBois. A “tree” of knowledge is described in Jean d’Alembert’s (“dal-om-BARE’s”) preface to an earlier one of these works.

ANSWER: **encyclopedias** [or **Encyclopédie**; prompt on reference works or dictionaries]

<Philosophy>

13. In this novel, the blessing “Anyone who thinks evil of you, may this car run them over in their sleep” is spoken over a new automobile. For 10 points each:

[10h] Name this novel that opens with the line “In the beginning there was a river.” A man in this novel fights a spirit in a white suit and tells the protagonist about a giant who eats himself until only his stomach remains.

ANSWER: *The **Famished Road***

[10m] This author wrote about the Party of the Rich and the Party of the Poor in *The Famished Road* and its sequel, *Songs of Enchantment*. He also wrote the 2020 novel *The Freedom Artist*.

ANSWER: Ben **Okri**

[10e] In 2018, Okri adapted this Albert Camus novel into a play, which he accompanied with a short film from the perspective of “the Arab,” who is murdered by this novel’s protagonist.

ANSWER: *The **Stranger*** [or **L’Etranger**; or *The **Outsider***]

<World/Other Literature>

14. This model modifies the bands predicted by the empty lattice approximation by opening gaps at band crossings. For 10 points each:

[10h] Name this model in which non-interacting particles are weakly perturbed by the presence of a periodic ionic lattice. In complementary situations, the tight-binding model might be used instead of this model.

ANSWER: **nearly free electron** model [or **NFE** model; or **quasi-free electron** model; prompt on free electron model]

[10m] This operation decomposes the periodic potential of the nearly free electron model into components labeled by reciprocal lattice vectors. This operation writes “ $U$  of  $R$ ” as a sum over  $G$  of “ $U$ -sub- $G$  times  $e$  to the  $iGR$ .”

ANSWER: discrete **Fourier** transform [accept **Fourier** series or **Fourier** expansion or inverse discrete **Fourier** transform; prompt on DFT]

[10e] The purpose of the nearly free electron model is to find solutions to this basic equation of quantum mechanics, whose time-dependent form describes the evolution of a wavefunction.

ANSWER: **Schrödinger** equation  
<Physics>

15. Theophano, the wife of a ruler of this name, may have introduced silverware to Western Europe. For 10 points each:

[10e] Give this name that was used by the Holy Roman Emperor who defeated the Magyars at Lechfeld and began an artistic renaissance in the empire.

ANSWER: **Otto** [accept **Otto I** or **Otto the Great** or **Otto II**]

[10h] Another Byzantine princess, Maria Argyropoulina (“AR-juh-ro-poo-LEE-na”), used a golden fork during her marriage to a holder of this position. Geoffrey of Villehardouin (“vee-lard-WANN”) disputes that Manuel I Komnenos angrily blinded a holder of this position.

ANSWER: **Doge** of Venice

[10m] Through her marriage to Henry II, this French queen also may have introduced forks, and one of her chefs supposedly invented macaroons. She likely instigated the St. Bartholomew’s Day Massacre.

ANSWER: **Catherine de’ Medici** [prompt on **Medici**]

<European History>

16. A character in this novel tries to recollect the presence of a red-haired healing woman and later leaves his partner with a psychopomp boatman. For 10 points each:

[10h] Name this novel set in a mystical Dark Age Britain, in which Axl and Beatrice search for their son. Wistan and Gawain seek to kill Querig, whose presence cloaks the land in mist, in this novel.

ANSWER: *The **Buried Giant***

[10m] In this novel by the author of *The Buried Giant*, Kathy acts as a “carer” for Ruth and the non-artistic Tommy. This novel is named for a Judy Bridgewater song on a tape that Kathy dances to while pretending to hold a baby.

ANSWER: ***Never Let Me Go***

[10e] *The Buried Giant* and *Never Let Me Go* are novels by this author who created the butler Stevens, who regrets his inability to “banter,” in *The Remains of the Day*.

ANSWER: Kazuo **Ishiguro**

<British Literature>

17. In this poem, a god is hung between two fires for eight nights, prophesies (“PROFF-uh-sighs”) the kingship of Agnar, and identifies himself by names including “Allfather.” For 10 points each:

[10h] Name this section of the *Poetic Edda* in which Odin introduces himself as the namesake traveler in a test of hospitality, only for Geirröth to unwittingly torture him.

ANSWER: **Grímnismál** [accept *The **Lay of Grímnir***]

[10e] Disguised as Gestumblindi, Odin wins a contest of these things by asking what Odin whispered in Baldr’s ear at his funeral. A similar story in the *Vafthrudnismal* (“vahf-throod-niss-mall”) inspired a contest of these questions between Bilbo and Gollum.

ANSWER: **riddles** [prompt on **puzzles** or **brain teasers** or equivalents; prompt on **wits**] (Odin bests Heidrek while disguised as Gestumblindi in the *Hervarar Saga*.)

[10m] In the *Skáldskaparmal* (“skald-ska-par-mal”), Odin poses as Bölverk to steal this substance from Suttungr. Odin spends three nights with Gunnlöd to obtain this substance, and later drops an inferior portion of it.

ANSWER: **Mead of Poetry** [or **Poetic Mead** or **Liquor of Hnithbjörg**; prompt on **mead**] (The inferior part of the Mead of Poetry became the “poetaster’s share.”)

<Mythology>

18. On the left side of Pipilotti Rist’s installation *Ever is Over All*, a woman destroys some of these objects with a flower-shaped hammer. For 10 points each:

[10h] Name these objects. Eight of these objects were impaled on a spike in the demolished sculpture *Spindle*, and Chris Burden crucified himself on one of these objects in the 1974 performance piece *Trans-Fixed*.

ANSWER: **cars** [or equivalents; accept window of a **car**; accept **Volkswagen** Beetle, **BMW** 2002, **Ford** Escort or Mustang or LTD, **Mercury** Capri or Grand Marquis, **Pontiac** Grand Prix, or other specific types of car; prompt on **windows**] (*Spindle* is by Dustin Shuler.)

[10e] *Ever is Over All* may have inspired a work of this type in which Beyoncé smashes car windows with a baseball bat to the tune of her song “Hold Up.” A police car sinking into water features in a work of this type made for Beyoncé’s “Formation.”

ANSWER: **music videos** [prompt on **video**; prompt on **album**; accept **visual album**]

[10m] In 2009, Rist won a prize named for this Catalan artist, whose multi-material structure *The Sun, The Moon, and One Star* includes a fork-like structure. Hemingway transported this artist’s painting *The Farm* on top of a car.

ANSWER: Joan **Miró** [or Joan **Miró** i Ferrà; accept Joan **Miró** Prize]

<Other Arts (Visual)>

19. In an incomprehensible attempt at a joke, Clayden’s *Organic Chemistry* textbook credits the discovery of this reaction to “Welsh chemist Owen Bracketts.” For 10 points each:

[10h] Name this reaction in which oxalyl chloride, DMSO, and a weak base convert an alcohol to a carbonyl (“car-bo-NEEL”), yielding foul-smelling dimethyl sulfide as a byproduct.

ANSWER: **Swern** oxidation [prompt on **oxidation**] (As the textbook explains, an “O in brackets” is shorthand for oxidation by an unspecified reagent.)

[10m] Dess–Martin periodinane (“pur-eye-ODD-in-ane”), which performs a similar reaction, has this unusual property at its iodine atom. Linus Pauling proposed that molecules like sulfur hexafluoride achieve this property through  $sp^3d^2$  (“S-P-three-D-two”) hybridization.

ANSWER: **hypervalent** [or **hypervalence**; or **expanded octet**; accept any answer describing an atom that **violates** the **octet** rule; accept any answer describing an atom with **more than an octet**, **more than eight** valence **electrons**, or **more than four bonds**; prompt on **hypercoordination**]

[10e] Hypervalency is especially common among compounds formed by this group of elements, since those in period 2 and below already have eight valence electrons.

ANSWER: **noble gases** [or group **18**; or **aerogens**; prompt on **inert gases**]

<Chemistry>

20. Pro-Palestinian murals in Belfast are among the worldwide reproductions of an Eddie Adams photo of this woman in which she wears a keffiyeh (“kuh-FEE-yuh”) and brandishes an AK-47. For 10 points each:

[10h] Name this member of the PFLP, the first woman to hijack a plane. She was a participant in the Dawson’s Field hijackings and had earlier hijacked a TWA flight to Tel Aviv.

ANSWER: Leila **Khaled**

[10e] The Dawson’s Field hijackings took place during a conflict between the PLO and this country known as Black September. This country’s Hashemite king Abdullah I reneged on his promise to support Israeli independence.

ANSWER: **Jordan** [or Hashemite Kingdom of **Jordan**]

[10m] In 1970, Palestinians carried out the Sabena hijacking, whose end was negotiated by this defense minister of Israel. This eyepatch-wearing general led Israeli forces during the Six-Day War.

ANSWER: Moshe **Dayan** (“MO-sheh da-YAHN”)

<World History>